

Sustainability in budget preparation

Sustainability means that organisations should use resources in such a way that they do not compromise the needs of future generations. Businesses should seek social and environmental sustainability in addition to economic sustainability.

Rather than taking a reactive, passive approach to sustainability, finance professionals should take the initiative in raising awareness of social responsibility and the need to consider the impact of decisions and actions on sustainability. However, they need to remain objective while doing this.

This will involve promoting sustainable practices through the organisation in relation to the following:

Products and services

- Does making the product use inputs/materials/ingredients from renewable sources only?
- Does the firm source raw materials in ways that support their replenishment, safeguard natural habitats and ensure good animal welfare standards?
- What is the expected life of the product?
- How much of the product (including packaging) can be recycled?
- Is the level of packaging excessive?
- Can the product/service be made more inclusive? E.g. the introduction into the Mattel Barbie range of dolls with different skin tones, hair types and body types and dolls with disabilities.

Customers

- Does the firm have a recycling programme?
- What incentives are given to customers to encourage them to recycle?
- Does the firm encourage/help customers reduce their carbon footprint?

The supply chain

- Does the firm incorporate environmental considerations when selecting suppliers? For example, would it use a supplier with a poor record on pollution?
- Does the firm use suppliers who are geographically close to reduce the impact of transportation in terms of fuel used and exhaust emissions?
- Does the firm pay fair prices to suppliers or does it use its buying powers to drive prices down to very low levels?
- Does the firm encourage/help suppliers reduce their carbon footprint?
- Does the firm help suppliers reduce waste sent to landfill?

The workplace

- Does the firm have measurable targets for energy/water usage?
- Is the building energy efficient?
- Is the workplace a safe, comfortable, pleasant environment to work in?

Employees

- Does the firm look after its employees in terms of working conditions, employment rights, job security, etc. or are staff 'hired and fired' when necessary?
- Does the firm contribute to community projects?
- Does the firm ensure equitable treatment to all employees?

Other business functions and processes

- Does the firm take into account environmental impacts of activities when making decisions?
- Does the firm measure the impact of social initiatives?

Business sustainability is about ensuring that organisations implement strategies that contribute to long-term success.

Organisations that act in a sustainable manner not only help to maintain the well-being of the planet and people, they also create businesses that will survive and thrive in the long run.

In addition, it may be in the firm's **financial** interest to act sustainably.

Directors have a duty to try to increase the wealth of their shareholders and some would see sustainability as conflicting with this objective.

However, many would argue that sustainability should result in better business performance in the long run.

The benefits of acting in a more sustainable fashion are evidenced by the large number of businesses adopting sustainable policies. Stakeholder benefits can be listed as follows:

- Workers/local community: reduced waste and pollution will lead to a more pleasant, healthier environment. Guarantee of an appropriate minimum wage will lead to a better standard of living. Better workplace conditions will attract a higher calibre of workers and reduce accidents/injuries.
- Customers: many customers prefer dealing with businesses that follow sustainable policies such as looking after the environment or providing good working conditions and opportunities for workers, as they are seen as being more ethical.
- Supply chain: integrating sustainability into the supply chain will help suppliers achieve their own sustainability goals.
- Shareholders: Shareholders look for an economically sound investment. Reduction of waste and increased efficiency can improve business profits. This could lead to higher long-term returns for investors.
- Public: Businesses that are economically sound provide a stable job market for workers. Reduced emissions or a lower carbon footprint can lead to fewer environmental problems, such as acid rain and soil erosion.

As well as the ethical arguments above, organisations may want to consider acting sustainably for other reasons such as the positive impact it can have on organisational profits.



Illustration 1 – How sustainability can boost profits

- Sustainability may help directly increase sales of products and services in the short-term by making products more attractive to buyers.
For example, some customers may buy your product because a label on it says it has been manufactured using extra-safe working conditions for the labour force, or because it is Fairtrade.
- It may result in **cost savings**.
For example, lower energy usage may reduce costs and increase profit.
- It may create **positive PR** and thus contribute to the business in the long run.
While sustainability may not enhance product sales right away, it can enhance the image of a company, which in turn contributes to better business in the long term.

- Avoiding **fin**es for pollution.

The Deepwater Horizon oil spill in 2006 resulted in BP being fined \$4.5 billion by the US Department of Justice. However, it is estimated that the total cost to date is in excess of \$42 billion in terms of criminal and civil settlements and payments to a trust fund.

General economic environment

The economic environment will have an impact on the costs and revenues of a business both nationally and internationally. The impact of changing interest rates, exchange rates, inflation and general economic activity will impact on the productivity and profitability of businesses.

Interest rates affect the cost of borrowing money. If interest rates rise this can impact businesses by increasing the cost of overdrafts and loans they use for financing business activities and also impact consumers as general living costs, for example mortgage repayments, will increase.

Inflation refers to a rise in a broad price index representing the overall price level for goods and services in the economy. When the general price level rises, each unit of currency will be able to purchase fewer goods and services. Inflation reflects a reduction in the purchasing power per unit of money. Inflation may discourage investment and savings.

An exchange rate is expressed in terms of the quantity of one currency that can be exchanged for one unit of the other currency. It can be thought of as the price of a currency. Exchange rates between different countries can affect the level of international trade. Receivable or payable balances in foreign currencies are open to risk if exchange rates change; prices may need to be revised in response to an exchange rate movements and investment in overseas subsidiaries may be positively or negatively affected by a change in the value of the money.

The general state of the economy will impact on businesses – is the economy in a boom or bust period? Businesses will need to consider the general economic state and how it is forecast to change when forecasting productivity and pricing strategies.

Gross Domestic Product (GDP)

The Gross Domestic Product (GDP) is a measure of the value of economic activity within a country.



GDP is the sum of the market values, or prices, of all final goods and services produced in an economy during a period.

GDP measures the health of a country. It is a number that expresses the worth of the output of a country in local currency. This economic indicator reflects the monetary value of goods (from food products to vehicles, machinery and textiles) and services (such as health care, education, etc.) produced in the country over a certain period, usually a year or a quarter of a year.

A country with a high GDP is a good economy while a country with a low GDP is poor economy.

The ideal GDP growth rate is between 2% and 3%. The GDP growth rate measures how healthy the economy is. When the number is positive, the economy is growing. When the number is negative, the economy is contracting.

GDP enables businesses, policymakers and central banks to judge whether the economy is contracting or expanding and promptly take necessary action.

Sustainability in performance measurement

Accountants could encourage a business to switch to triple bottom line (TBL) reporting. TBL reporting expands the traditional company reporting framework to take into account environmental and social performance in addition to financial (economic) performance.

A key aspect of TBL is that it relates to both performance measurement and decision making. Once targets are set for these aspects and performance is measured, then firms will incorporate the effects into decision making.

The concept is often explained using the triple 'P' headings of 'Planet, People and Profit'.



Illustration 1 – Triple bottom line reporting

Planet

- A TBL company will try to reduce its 'ecological footprint' by managing resource consumption and energy usage and limiting environmental damage.
For example, production processes will be efficient in terms of resource use and environmentally-damaging outputs such as toxic waste eliminated.
- The drive for environmental sustainability also means that TBL companies will not be involved in resource depletion.
For example, fish stocks are maintained at sustainable levels and timber use is balanced by replanting to retain the resource into the future.

People

- A TBL business will ensure workers' rights are respected.
For example, it will pay its workers fair wages, maintain a safe working environment and not use child labour.
- Similarly, the company would promote its surrounding community, for example by providing educational opportunities or a safe community to live in.
For example, the Bourneville estate established by Cadbury, a chocolate maker in England.

Profit

- A TBL company will try to balance the profit objective with the other two elements of the TBL.

The problem with TBL is that it can be difficult to measure the three factors concerned.



Illustration 2 – Measuring performance using TBL reporting

Typical measures include the following:

Planet

- Electricity consumption
- Fossil fuel consumption
- Water usage
- Amount of greenhouse gases and other pollutants produced
- Percentage of resources recycled compared with dumped as landfill.

People

- Jobs created/unemployment rates
- Average pay levels
- Health and safety measures, such as accident rates
- Equality measures such as the diversity of employees.

Profit

- Profitability of individual businesses/divisions
- Taxes paid.

Evaluating the benefit of further processing

The main decisions involving joint products are:

- If a joint product appears to be making a loss, management cannot decide to stop making the product. In order to carry on making the other joint products that are making a 'profit', the 'loss-making' joint product will have to be made as well.
- Basis for apportioning the joint costs. The apportionment basis should be 'fair', but entirely different costs and profits can be calculated for joint products, depending on which method of apportionment is used.

It is assumed that further processing of products after the point of separation is independent i.e. a decision to process one joint product in no way affects the decision to process further the other joint products.

The pre-split off costs of the common processing of the joint products are irrelevant to the further processing decision. The joint costs are not affected by whether individual products are further processed, and are therefore not relevant to the decision under consideration.

To evaluate processing of the individual products it is necessary to identify the incremental costs and incremental revenues relating to that further processing, i.e. the additional costs and revenue brought about directly as a result of that further processing.



Illustration 6 – Further processing of joint products

The following data relates to products A and B produced from a joint process:

	Quantity produced	Sales price at split-off point	Further processing costs	Sales price after further processing
	kg	\$ per kg		\$ per kg
Product A	100	5	\$280 plus \$2.00 per kg	8.40
Product B	200	2	\$160 plus \$1.40 per kg	4.50

Common costs prior to the split-off point are \$750.

Should each product be sold at the split-off point, or processed further before sale?

Solution

Evaluation of further processing

	Product A		Product B	
	\$	\$	\$	\$
Sales value after further processing		840		900
Sales value at split off point		(500)		(400)
Incremental sales revenue from further processing		340		500
Further processing costs				
Fixed	280		160	
Variable	200		280	
		(480)		(440)
Gain/(loss) from further processing		(140)		60

On the basis of these figures the recommendation would be:

Product A Sell at split-off point for \$5.

Product B Sell for \$4.50 after further processing.

Before a final decision is made on whether to further process a joint product the following should be considered:

- The products in their final state may be in some way 'complementary' i.e. it may only be possible to sell B if A is also available in a further processed state.
- The decision to stop further processing of a product could result in having to reduce the workforce employed and the potential knock-on effects of this, for example the remaining workforce could go out on strike.
- The products all contribute towards the fixed costs of the business. The individual values apportioned to the products may still be incurred even if further processing is stopped.
- The volume of units being produced may affect the decision to proceed with the further processing



Illustration 7 – Further processing of joint products

Looking in more detail at the further processing of A it is possible to see that further processing of 1 kg of A results in an incremental contribution of:

	\$
Incremental revenue (8.40 - 5.00)	3.40
Incremental variable cost	(2.00)
Incremental contribution	1.40

It is therefore possible to identify the level of activity at which further processing of A becomes worthwhile i.e. the 'break-even volume'.

$$\begin{aligned}
 \text{Break-even volume} &= \frac{\text{Incremental fixed costs}}{\text{Incremental contribution per kg}} \\
 &= \frac{280}{1.40} \\
 &= 200 \text{ kg}
 \end{aligned}$$

If the volume of A in the future is greater than 200 kg, further processing becomes economically worthwhile.



Test your understanding 8

When deciding, purely on financial grounds, whether or not to process a joint product after the separation point, the information required is:

- (i) the value of the common process costs.
- (ii) the method of apportioning the common costs between the joint products.
- (iii) the sales value of the joint product at the separation point.
- (iv) the final sales value of the joint product.
- (v) the further processing cost of the joint product.

Which of the statements are correct?

- A (i), (ii) and (iii) only.
- B (iii), (iv) and (v) only.
- C (iv) and (v) only.
- D (i), (ii), (iv) and (v) only.

5 Just in time (JIT)

Just in time is an approach based on the idea that goods and services should be produced only when they are needed. JIT aims to have zero inventories of raw materials, work in progress or finished goods.

JIT **production** is defined as:



A production system which is driven by demand for finished products whereby each component on a production line is produced only when needed for the next stage

JIT **purchasing** is defined as:



A purchasing system in which material purchases are contracted so that the receipt and usage of material, to the maximum extent possible, coincide.

These definitions give JIT the appearance of being merely an alternative production management system. However, JIT is better described as a philosophy, or approach to management, as it encompasses a commitment to continuous improvement and the pursuit of excellence in the design and operation of the production management system.

The JIT philosophy is based on:

- Continuous improvement ('kaizen') – doing things well and gradually doing them better
- The elimination of waste – overproduction of goods, waste in the process, holding inventory, defective goods.

To be able to operate a JIT system there are a number of requirements:

- High quality – materials and the production system must be reliable
- Speed – the production system must be fast to enable customer orders to be met when placed
- Flexibility – the production system must be able to respond immediately to customer orders and be flexible to order size.

The benefits of a JIT system include:

- Less cash tied up in inventory
- Less storage space needed
- Better quality output
- More flexible production and better co-ordination
- Reliable and supportive suppliers.

The problems with JIT:

- requires predictable demand, flexible suppliers and a flexible workforce to be successful
- no fall-back position (buffer) if production is disrupted.



Toyota

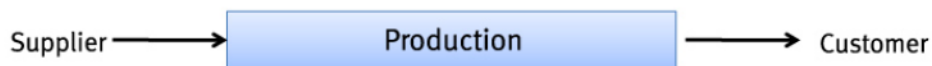
Organisations in the West have traditionally used a 'push' production flow system. This system has the following stages:

- 1 Buy raw materials and put them into inventory.
- 2 Produce a production schedule based on sales forecasts.
- 3 Withdraw goods from inventory and make products according to the production schedule.
- 4 Put completed units into finished goods store.
- 5 Sell from finished goods store when customers request products.

Work in progress (WIP) is an unavoidable feature of such a system.

Toyota developed a different system known as JIT. This system is not a 'push' system but a 'pull' system. A product is not 'made' until the customer requests it, and components are not made until they are required by the next production stage. In a full JIT system, virtually no inventory is held, that is no raw material inventory and no finished goods inventory is held, but there will be a small amount of WIP, say one-tenth of a day's production. The system works by the customer triggering the final stage of production, the assembly. As the product is assembled, components are used and this in turn triggers the component stage of production and a small amount of WIP is made ready for the next product. So the cycle goes on until the final trigger requests more raw material from the supplier.

A 'push' system



A 'pull' system



If a JIT system is to work satisfactorily, suppliers must deliver several times a day and so when the raw material arrives it may go straight into the factory and be used immediately. This means that the production lead-time (i.e. the time from raw materials entering production to the finished goods emerging) should equal the processing time. In many Western organisations in the past it took several months to make a product from start to finish, despite the fact that if worked on continuously it could be made in, say, two days. The difference in time is largely due to WIP waiting to be used in the next process.

It will be apparent that value is only added to the product during the actual processing stages. These have been estimated to represent as little as 10 per cent of the total manufacturing lead-time in many companies, and thus up to 90 per cent of production time adds costs but no value.

JIT requires the following:

- 1 The **labour force must be versatile** so that they can perform any job within reason to keep production flowing as required. Workers in a JIT cell are trained to operate all the machines within it, and perform routine preventive maintenance on them.
- 2 Production processes must be **grouped by product line**, rather than by function in order to eliminate inventory movements between workstations and to speed flow.

- 3 A simple, **infallible information system**. Originally the Japanese used a system based on cards which were called Kanban. There would be a small container of components (WIP) between each workstation with a Kanban resting on top. When the container was taken for use by the following workstation the card would be taken off and left behind. This would act as a trigger for the previous workstation to produce another container of that component. Nowadays computer systems are likely to be used instead of cards but the basic simplicity of the system should not change.
- 4 A **'get it right first time'** approach and an aim of 'zero defects'. Defects cause breakdowns in the value chain: they stop the flow of production, create expensive rework and lead to late deliveries to customers.
- 5 **Strong supplier relationships**. Suppliers must take responsibility for the quality of their goods; the onus is on the supplier to inspect the parts or materials before delivery and guarantee their quality. The considerable savings in inspection costs go happily with the benefits of increased quality to achieve cost reduction – another facet of continuous improvement. This enhanced level of service is obtained by reducing the number of suppliers and increasing the business given to each of them. Longer-term commitments are entered into, assuring the supplier of continuity of demand, and enabling the supplier to plan to meet customers' production schedules. In essence the supplier becomes a key part of the value chain.

An important consequence of the 'pull' system, is that problems in any part of the system will immediately halt the production line, as earlier workstations will not receive the 'pull' signal and later stations will not have their own 'pull' signals answered.

This has the powerful effect of concentrating all minds on finding a long-term solution to the problem. JIT exposes problems within a plant, and forces management to address problems and rectify them, rather than simply burying them by holding excess inventory.

The aims of JIT are to produce the required items, at the required quality and in the required quantities, at the precise time they are required.

3 Data capture costs

The costs of information can be classified as follows:

Costs of internal information

- Direct data capture costs, e.g. the cost of barcode scanners in a supermarket.
- Processing costs, e.g. salaries paid to payroll processing staff.
- Indirect costs, e.g. information collected which is not needed or is duplicated.

Costs of external information

- Direct costs, e.g. newspaper subscriptions.
- Indirect costs e.g. wasted time finding useful information.
- Management costs, e.g. the cost of processing information.
- Infrastructure costs, e.g. of systems enabling internet searches.

The indirect costs of producing information

The most expensive cost of producing information is probably the cost of labour. People are needed to collect data, input data into the system, process the data and then output the resulting information. Throughout this process, the company needs to pay their wages and thus labour becomes part of the cost of producing information. When **new people are hired, a process is changed** or **software is upgraded**, then staff will require training.

Training, or re-training, is expensive in terms of:

- 1 Paying for the trainer
- 2 Paying wages for people being trained
- 3 Paying the wages for someone to do the normal work for the person being trained
- 4 Paying for the costs of the training venue
- 5 Lost productivity whilst people are being trained
- 6 Slower productivity whilst people 'learn on the job'.

Other indirect costs of providing information are those that are impossible to predict and quantify, and they may include:

- Loss of staff morale
- Delays caused in other projects of the business
- General dislocation caused by system change
- Upsetting customers from system change
- Incompatibility with other systems
- Unexpected costs of software amendments, tailoring and maintenance
- Cost of failure due to inappropriate systems or faulty implementation.

Further, more 'intangible' indirect costs of producing information include:

- Reduced quality of information, due to information overload
- Poor decision making, due to information overload
- Too many areas to focus on – so issues are not followed up
- Focus on the wrong things – i.e. only on those business areas and targets that are easy to measure and report on.



Test your understanding 2

D plc is wishing to improve staff morale so the HR department intend to use an online questionnaire that all staff are expected to complete to gather information. Completing the questionnaire will take approximately 30 minutes and staff have been told that they must do this during their lunch break.

The following costs of producing this information have been identified:

- I Paying for an external consultancy to design the questionnaire
- II Paying wages for people to email staff with instructions on how to complete the survey
- III Loss of staff morale due to loss of lunch break time
- IV Delays caused in other parts of the business due to staff filling in the survey when they should be working

Which of these costs would be considered as “indirect” costs of producing the information?

- A III only
- B IV only
- C III and IV only
- D I, III and IV



Test your understanding 3

A business is considering installing a retinal scanning machine to help with recording employee attendance and hours worked.

The following table details the costs of the retinal scanning system in its first year:

	\$	Notes
List price of the scanner	3,400	Invoiced and paid
Installation costs	1,500	Invoiced and paid
Testing costs (in-house)	500	Invoiced and paid
Cost of processing 100 scans	400	20 employees entering/leaving a day
Apportionment of the technology insurance cost	1,000	Fixed cost
Salary of receptionist employed to ensure scanner is used	17,000	Fixed cost

What is the indirect cost of producing the information required in the first year of the swipe card system?